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| EXAMINER | |
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| KARACSONY, ROBERT | |
| ART UNIT | PAPER NUMBER |
| 2892 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/527,768 | GLOCKER ET AL. | |
| | Examiner | Art Unit | |
| | Robert Karacsony | 2892 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *23 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *35-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *35-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 September 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11172005, 03112005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 35 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The applicant recites "a wireless communication device with a reduced SAR value" and fails to refer to what it is being reduced to. For examination purposes the examiner interprets any SAR value as being reduced.

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 35-43, 47, 50, 52-53 and 66-68 are rejected under 35 U.S.C. 102(e) as being anticipated by Phillips et al. (US 6,421,016, hereafter '016). Rejections are based on two separate interpretations.

**Interpretation 1:**

Claim 35: '016 teaches a wireless communication device with a reduced SAR value, comprising:

at least one circuit board (col. 4/lines 31-36);

at least one antenna (Fig. 1, 102) coupled to the at least one circuit board (col. 3/lines 48-50, antenna is coupled to circuit board through transceiver circuitry) for at least one of emitting and receiving electromagnetic radio energy fields (col. 3/lines 52-53); and

at least one first additional, current-conducting corrective element (Fig. 1, 104) for SAR value reduction (col. 5/lines 14-22) coupled to the circuit board (col. 4/lines 31-36) and embodied such that at least one of an amplitude level and a phase angle of electrical currents on the antenna, the circuit board and the corrective element are adjusted in relation to each other (col. 4/lines 28-58), wherein a maximum SAR distribution which results overall as a result of electrical currents in body tissue of a user becomes minimal (col. 5/lines 14-22) when the user carries the wireless communication device or brings the wireless communication device up to a head area of the user to speak or to listen (col. 2/lines 42-44).

Claim 36: '016 teaches an additional tuning part (108) for tuning at least one of the phase angle and the amplitude level of the electrical current on at least one of the first corrective element and the circuit board (col. 4/lines 28-58), wherein an overlaid total current flow (204) resulting from the electrical currents on the circuit board, the first corrective element and the antenna (col. 4/lines 28-58) has an overall effect of producing a substantially homogeneous SAR distribution (Fig. 2, 204) in one of a specifiable surface area (any select surface area of 108 where the SAR distribution is substantially homogeneous) viewed from a side of the circuit

board facing the user (Fig. 2, left side of 108) and in a specifiable volume area (any select volume area of 108 where the SAR distribution is substantially homogeneous) around a coupling structure (108) of the circuit board and the antenna coupled thereto (col. 4/lines 53-58, 102 is coupled to 108 through 208).

Claim 37: '016 teaches at least a second, current-conducting correcting element (108) for additionally tuning the current flow on at least one of the first corrective element and the circuit board (col. 4/lines 28-58) such that a changed electrical current flow (206) on at least one of the first corrective element and the second corrective element is caused (col. 4/lines 28-58) which runs substantially out-of-phase to the current flow on the circuit board (Fig 2. illustrates the magnitude of 206 having a maximum at the top of 104 near antenna 102 and it also illustrates 204 having a minimum at the top of 108 near 102, thus being substantially out-of-phase), wherein, (the remainder limitations of claim 37 are rejected for substantially the same reasons as claim 36, as discussed above) as a result of the overlaid total current flow on the circuit board, at least one of the first corrective element and the second corrective element and the antenna taken together, a substantially homogeneous SAR distribution over one of an overall area of a side of the circuit board facing the user and in a specifiable volume area around a coupling structure of the circuit board and the antenna coupled thereto results.

Claim 38: '016 teaches the first corrective element is electrically connected to ground of the circuit board (col. 4/lines 31-36).

Claim 39: '016 teaches the first corrective element is at least one of coupled capacitively and coupled inductively to the circuit board (Fig. 1, since 104 and the circuit board are close to each other as shown in Fig. 1 there must be capacitive coupling between the two).

Claim 40: '016 teaches the second corrective element is electrically connected to at least one of the first corrective element and the circuit board (Fig. 2, 208; col. 4/lines 31-36).

Claim 41: '016 teaches the second corrective element is at least one of capactively coupled to the first corrective element (Fig. 1, since 104 and 108 are close to each other as shown in Fig. 1 there must be capacitive coupling between the two).

Claim 42: '016 teaches the second corrective element is an integral component of at least one of the first corrective element and the circuit board (Fig 2 illustrates 108 and circuit board as integrated components).

Claim 43: '016 teaches the second corrective element is provided separately from at least one of the first corrective element and the circuit board (Fig. 1 illustrates 104 and 108 separated from each other).

Claim 47: '016 teaches at least one of the first corrective element and the second corrective element is arranged at a specifiable height from the circuit board (Fig. 1 illustrates 104 at a specific height from the circuit board).

Claim 50: Claim 50 is rejected for substantially the same reasons as claim 47, as discussed above.

Claim 52: '016 teaches the second corrective element runs substantially orthogonally to a longitudinal extent of the first corrective element (Fig. 1 illustrates the bottom part of 108 opposite of antenna 102 running orthogonally to a longitudinal extent of 104).

Claim 53: '016 teaches the second corrective element is positioned and dimensioned in such a way relative to at least one of the circuit board, the antenna and the first corrective

element that a minimum resulting SAR distribution is produced at around a resident frequency in radio operation of the antenna (Abstract; col. 5/lines 14-22).

Claim 66: '016 teaches the circuit board is substantially embodied in a rectangular shape (Fig. 1).

Claim 67: '016 teaches the antenna is embodied as one of a $\Lambda/4$ antenna and a PIFA antenna (col. 7/lines 4-11) which together with the circuit board form a radiating dipole (the antenna and 108 are center fed by transceiver circuitry 110 which form a dipole antenna).

Claim 68: Claim 68 is rejected for substantially the same reasons as claim 1.

**Interpretation 2:**

Claim 35: '016 teaches a wireless communication device with a reduced SAR value, comprising:

at least one circuit board (col. 4/lines 31-36);

at least one antenna (Fig. 1, 102) coupled to the at least one circuit board (col. 3/lines 48-50, antenna is coupled to circuit board through transceiver circuitry) for at least one of emitting and receiving electromagnetic radio energy fields (col. 3/lines 52-53); and

at least one first additional, current-conducting corrective element (Fig. 1, 108) for SAR value reduction (col. 5/lines 14-22) coupled to the circuit board (col. 4/lines 40-41) and embodied such that at least one of an amplitude level and a phase angle of electrical currents on the antenna, the circuit board and the corrective element are adjusted in relation to each other (col. 4/lines 28-58), wherein a maximum SAR distribution which results overall as a result of electrical currents in body tissue of a user becomes minimal (col. 5/lines 14-22) when the user

carries the wireless communication device or brings the wireless communication device up to a head area of the user to speak or to listen (col. 2/lines 42-44).

Claim 37: '016 teaches at least a second, current-conducting correcting element (104) for additionally tuning the current flow on at least one of the first corrective element and the circuit board (col. 4/lines 28-58) such that a changed electrical current flow (206) on at least one of the first corrective element and the second corrective element is caused (col. 4/lines 28-58) which runs substantially out-of-phase to the current flow on the circuit board (Fig 2. illustrates the magnitude of 206 having a maximum at the top of 104 near antenna 102 and it also illustrates 204 having a minimum at the top of 108 near 102, thus being substantially out-of-phase), wherein, (the remainder limitations of claim 37 are rejected for substantially the same reasons as claim 36, as discussed above) as a result of the overlaid total current flow on the circuit board, at least one of the first corrective element and the second corrective element and the antenna taken together, a substantially homogeneous SAR distribution over one of an overall area of a side of the circuit board facing the user and in a specifiable volume area around a coupling structure of the circuit board and the antenna coupled thereto results.

3. Claims 35, 44-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Perrotta et al. (US 6,246,374, hereafter '374).

Claim 35: '374 teaches a wireless communication device with a reduced SAR value, comprising:

at least one circuit board (col. 3/line 8);

at least one antenna (Fig. 2, 16) coupled to the at least one circuit board (col. 2/lines 13-15; 16 is coupled to 18 which is then coupled to the circuit board, (col. 3/lines 40-43)) for at least one of emitting and receiving electromagnetic radio energy fields (col. 2/lines 17-20); and

at least one first additional, current-conducting corrective element (Fig. 2, 18) for SAR value reduction (col. 3/lines 8-14) coupled to the circuit board (col. 3/lines 40-43) and embodied such that at least one of an amplitude level and a phase angle of electrical currents on the antenna, the circuit board and the corrective element are adjusted in relation to each other (the effects of coupling between 16, circuit board and 18 results in their currents adjusting in such a way with each other that the SAR distribution becomes minimal), wherein a maximum SAR distribution which results overall as a result of electrical currents in body tissue of a user becomes minimal (the effects of coupling between 16, circuit board and 18 results in their currents adjusting in such a way with each other that the SAR distribution becomes minimal) when the user carries the wireless communication device or brings the wireless communication device up to a head area of the user to speak or to listen (col. 2/lines 42-44).

Claim 44: '374 teaches the first corrective element (184) is embodied as a loop (Fig. 4) which at least partly extends along side edges of the circuit board (Fig. 4).

Claim 45: '374 teaches the loop for the first corrective element is substantially embodied as a rectangle (Fig. 4).

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 37, 46 and 54-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over '016 (Interpretation 1; Interpretation 1 & 2 will be used for the rejection of claim 37 below) in view of '374.

Claim 37: '016 teaches all of the limitations of claim 35, as discussed above. It fails to teach at least a second, current-conducting correcting element for additionally tuning the current flow on at least one of the first corrective element and the circuit board such that a changed electrical current flow on at least one of the first corrective element and the second corrective element is caused which runs substantially out-of-phase to the current flow on the circuit board, wherein, as a result of the overlaid total current flow on the circuit board, at least one of the first corrective element and the second corrective element and the antenna taken together, a substantially homogeneous SAR distribution over one of an overall area of a side of the circuit board facing the user and in a specifiable volume area around a coupling structure of the circuit board and the antenna coupled thereto results. However, '374 teaches using a parasitic element to enhance the gain of an antenna system (Abstract) and also reduce hand proximity effects (col. 3/lines 8-14, Fig. 5). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the parasitic radiator of '374 with the antenna system of '016 in order to have increased the gain of the antenna system as well reduce hand proximity effects, which in turn, will have additionally tuned the current flow on the internal components of the antenna system in such a way that the current flow on at least one of the first

corrective element and the circuit board such that a changed electrical current flow on at least one of the first corrective element and the second corrective element is caused which runs substantially out-of-phase to the current flow on the circuit board, wherein, as a result of the overlaid total current flow on the circuit board, at least one of the first corrective element and the second corrective element and the antenna taken together, a substantially homogeneous SAR distribution over one of an overall area of a side of the circuit board facing the user and in a specifiable volume area around a coupling structure of the circuit board and the antenna coupled thereto results.

Claim 46: '016 teaches all of the limitations of claim 37, as discussed above. '016 fails to teach the second corrective element is embodied as one of a serpentine loop structure and in a form of at least one flat element. However, '374 teaches using a parasitic element shaped as a loop with serpentine characteristics and substantially flat to enhance the gain of an antenna system (Abstract) and also reduce hand proximity effects (col. 3/lines 8-14; Fig. 5). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the parasitic radiator of '374 as the resonator of '016 in order to have increased the gain of the antenna system as well reduce hand proximity effects.

Claim 54: '016 in view of '374 teach the second corrective element is dimensioned such that a component placement surface of the circuit board enclosed by it corresponds at most to 0.2 to 0.5 times a part of the circuit board surface enclosed by the first corrective element (the enclosed part of the circuit board is viewed as the area enclosed by the imaginary side edges of 104 projected onto the circuit board. The component placement surface of the circuit board, which is enclosed by the parasitic radiator 18, is the surface area underneath the transceiver

circuitry 110, which is no more then half the size of the part of the circuit board surface enclosed by the first corrective element).

Claim 55: '016 in view of '374 teaches at least a third additional, current-conducting corrective element (108) on the circuit board coupled and embodied as a tuning part (col. 4/lines 28-58) such that for the electrical current generated on the circuit board, an explicit current path extension (path being entire surface of the conducting strip) is effected (col. 4/lines 28-58) while simultaneously substantially retaining original specified length and width dimensions of the circuit board (Fig. 1 illustrates 108 running along left edge and bottom edge of circuit board which is within the boundaries of the circuit board therefore retaining original specified length and width dimensions).

Claim 56: '016 in view of '374 teaches the third corrective element is arranged in an area of an end face of the circuit board which lies opposite an end face of the circuit board having a connection area of the antenna (Fig. 1 illustrates arranged in an area, bottom end of circuit board, opposite the antenna).

Claim 57: '016 in view of '374 teaches the third corrective element is embodied in a serpentine shape (Fig. 1).

Claim 58: '016 in view of '374 teaches the respective additional corrective element is assigned to a component placement surface (entire surface of circuit board) of the circuit board which, when the wireless communication device is worn on the body of the user or when the wireless communication device is brought up to the head area of the user for speaking or listening is facing the respective body or head area (The examiner takes official notice that it is well known for a user to use his hands to bring a wireless communication device up to his/her

head which makes the component placement surface, which element 108 is located, face the users hand).

Claim 59: '016 in view of '374 teaches the respective corrective element is arranged on a component side of the circuit board opposite the antenna (Fig. 1 illustrates 108 located on the component side of the circuit board as well as extending along the bottom edge opposite the antenna).

Claim 60: Claim 60 is rejected for substantially the same reasons as claim 55, as discussed above.

Claim 61: '016 in view of '374 teaches the respective additional corrective element is, assigned as at least one further layer in a spatial area which is at least one of within, above, below and to a side of the delimitation area spanned by the side edges of the circuit board (Fig. 1 illustrates 104 located at another layer above and within the delimitation area spanned by the side edges of the circuit board).

Claim 62: '016 in view of '374 teaches the respective corrective element is at least one of an electrically conductive material, a dielectric material and a magnetically conductive material (col. 3/line 54).

Claim 63: '016 in view of '374 teaches the respective corrective element is formed by at least one of: at least one wire-type component (col. 4/lines 15-17); at least a single layer electrically conductive foil; and at least a single layer covering.

Claim 64: '016 in view of '374 teaches at least one of the corrective elements is formed by at least one coating layer ('374 teaches 18 may be made as a metallized layer of paint, a metal plate or patch; col. 3/lines 33-34) in at least one of a lower shell (top area near antenna 102) and

a upper shell (bottom area opposite antenna 102) of a housing (106) of the wireless communication device.

Claim 65: Claim 65 is a product-by-process limitation and is therefore limited to the structure implied and not the process (MPEP 2113). '016 in view of '374 teaches a bent conductor which would be capable of being manufactured using a punch/bend technology. '016 in view of '374 teaches it is and is arranged at a specifiable height above a component placement surface of the circuit board (Fig. 1 shows 104 at a specific height away from circuit board).

6. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over '016 in view of Ying et al. (US 6,650,294, hereafter '294).

'016 teaches all of the limitations of claim 47, as discussed above. '016 fails to teach the height is between 0.1 and 0.6 cm away from a component placement surface of the circuit board. However, '294 teaches that it is suitable to select any height, even between 0.1 and 0.6 cm, and that varying the height only tunes the antenna to a desired frequency (col. 10/lines 24-43). The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for '016 to have used the teachings of '294 in order to have selected the desired height between 104 and 108, 108 lying in the same plane as the component placement surface of the circuit board, to have obtained the desired frequency with a reasonable expectation of success.

7. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over '016 (Interpretation 2) in view of '374 as applied to claim 37 above, and further in view of '294.

Claim 49 is rejected for substantially the same reasons as claim 48, as discussed above. '294 teaches that the first and second element are located in substantially the same layer plane.

8. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over '016 (Interpretation 1) in view of Pirila et al. (US 6,728,555, hereafter '555) and '374.

'016 teaches all of the limitations of claim 37, as discussed above. '016 fails to teach the second corrective element is a metallic display window. However, '374 teaches that it is suitable to use the outer contour of the display screen as the parasitic element which will enhance the gain of an antenna system (Abstract) and also reduce hand proximity effects (col. 3/lines 8-14, Fig. 5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the outer contour of the display screen of '374 as the second element, 108, of '016 in order to have increased the gain of the antenna system as well reduce hand proximity effects.

'016 also fails to teach the second corrective element is an ESD protective element. However, '555 teaches a display frame with integrated ESD shield (Title) that advantageously constitutes a support for the gasket(s) that separate it from the device's outer cover (col. 2/lines 8-13). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the display frame with integrated shield of '555 as the outer contour of the display screen of '016 in view of '374 in order to have advantageously constituted a support for the gasket(s) that separate it from the device's outer cover.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Karacsony whose telephone number is 571-270-1268. The examiner can normally be reached on M-F 7:30-5 EST with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RK/rr

MICHAEL B. CLEVELAND
SUPERVISORY PATENT EXAMINER